

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : 09-111207

(43)Date of publication of application : 28.04.1997

(51)Int.Cl.

C09J 7/02

C09J 7/02

C09J 7/02

C09J 7/02

B32B 7/02

B32B 7/12

B32B 27/00

H01L 21/60

(21)Application number : 07-294935

(71)Applicant : DAINIPPON PRINTING CO LTD

(22)Date of filing : 19.10.1995

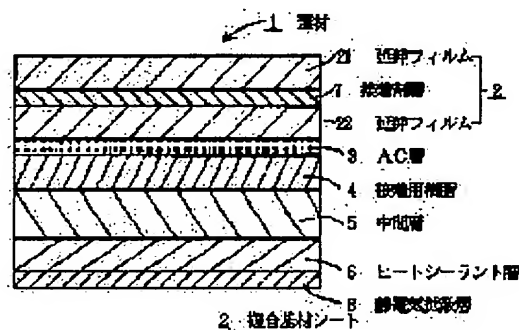
(72)Inventor : YAMASHITA RIKIYA

## (54) COVER TAPE FOR CARRIER TAPE

## (57)Abstract:

PROBLEM TO BE SOLVED: To obtain a cover tape stable in release strength, slight in zipping up and excellent in antistatic properties.

SOLUTION: In this cover tape 1 heat-sealable to a carrier tape, a cover material is obtained by successively laminating a complex substrate sheet 2 obtained by bonding biaxially orientated films 21 and 22 through an adhesive layer 7 to an intermediate layer 5, a heat sealant layer 6 and a static electricity diffusing layer 8 consisting essentially of a bisammonium-based sulfur semiconductor.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

**\* NOTICES \***

**JPO and NCIPi are not responsible for any damages caused by the use of this translation.**

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

---

**CLAIMS**

---

**[Claim(s)]**

[Claim 1] The covering tape for carrier tapes characterized by carrying out the laminating of the static electricity diffusion layer which uses as a principal component the compound base material sheet which pasted together the oriented film with which this covering tape consists of more than two-layer through the adhesives layer in the covering tape which can be heat sealed on a carrier tape, the middle class, a heat SHIRANTO layer, and a bis-ammonium system sulfur semi-conductor to order.

[Claim 2] It is a covering tape for carrier tapes according to claim 1 about the adhesives layers which paste said oriented film together being polyester, a polyether, urethane system resin, ethylene and vinyl acetate system resin, acrylic resin, epoxy resins, or these denaturation objects.

[Claim 3] Said middle class is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. The hydrogenation object of ethylene and an alpha olefin copolymer, a 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymer, and a 10 - 50 % of the weight of styrene, and 90 - 50 % of the weight [ of butadienes ] styrene butadiene block copolymer, and covering tape for carrier tapes characterized by being formed with three or more sorts of resin which contains ethylene, an alpha olefin copolymer, and a styrene butadiene block copolymer at least among high impact polystyrene.

[Claim 4] Said middle class is monolayer structure and is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. Ethylene and 30 - 70 % of the weight of alpha olefine copolymers, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymers 10 - 50 % of the weight of styrene, and the hydrogenation object 5 of a 90 - 50 % of the weight [ of butadienes ] styrene butadiene block copolymer - 30 weight sections, The covering tape for carrier tapes according to claim 3 characterized by being formed with the resin constituent with which HAIMPAKUTO polystyrene 5 - 50 weight sections are added.

[Claim 5] Said middle class is monolayer structure and is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. Ethylene and 30 - 70 % of the weight of alpha olefine copolymers, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymers The covering tape for carrier tapes according to claim 3 characterized by being formed with the resin constituent with which the hydrogenation object 5 of a 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [ of butadienes ] styrene butadiene block copolymer - 30 weight sections are added.

[Claim 6] said middle class be monolayer structure and be a consistency 0.915 - 0.940 g/cm<sup>3</sup>. covering tape for carrier tapes according to claim 3 characterize by be form to the resin constituent 100 weight section which consist of ethylene and 30 - 70 % of the weight of alpha olefine copolymers, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymers with the resin constituent with which 5 - 50 % of the weight of high impact polystyrene be add.

[Claim 7] Said interlayer consists of two-layer structure with the 2nd resin layer which touches the 1st resin layer and said heat SHIRANTO layer. Said 1st resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. It is formed with ethylene and alpha olefine copolymer. Said 2nd resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. Ethylene and 30 - 70 % of the weight of alpha olefine copolymers, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymers The covering tape for carrier tapes according to claim 3 characterized by being what currently formed with the resin constituent with which the hydrogenation object 5 of a 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [ of butadienes ] styrene butadiene block copolymer - 30 weight sections are added.

[Claim 8] Said interlayer consists of two-layer structure with the 2nd resin layer which touches the 1st resin layer and said heat SHIRANTO layer. Said 1st resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. It is formed with ethylene and alpha olefine copolymer. Said 2nd resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. Ethylene and 30 - 70 % of the weight of alpha olefine copolymers, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymers The covering tape for carrier tapes according to claim 3 characterized by being what currently formed with the resin constituent with which high impact polystyrene 5 - 50 weight sections are added.

[Claim 9] Said interlayer consists of two-layer structure with the 2nd resin layer which touches the 1st resin layer and said heat SHIRANTO layer. Said 1st resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. It is formed with ethylene and alpha olefine copolymer. Said 2nd resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. Ethylene and 30 - 70 % of the weight of alpha olefine copolymers, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymers 10 - 50 % of the weight of styrene, and the hydrogenation object 5 of a 90 - 50 % of the weight [ of butadienes ] styrene butadiene block copolymer - 30 weight sections, The covering tape for carrier tapes according to claim 3 characterized by being what currently formed with the resin constituent with which high impact polystyrene 5 - 50 weight sections are added.

[Claim 10] Said interlayer turns into the 1st resin layer, the 2nd resin layer, and said heat SHIRANTO layer from a three-tiered structure with the 3rd resin layer of \*\*\*\*. Said 1st resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. It is formed with ethylene and alpha olefine copolymer. Said 2nd resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. Ethylene and 30 - 70 % of the weight of alpha olefine copolymers, It is formed with a 70 - 30 % of the weight [ of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight / of butadienes / styrene butadiene block copolymers ] resin constituent. Said 3rd resin layer A consistency 0.915 - 0.940 g/cm<sup>3</sup> Ethylene and 30 - 70 % of the weight of alpha olefine copolymers, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymers It is what is formed with the resin constituent with which the hydrogenation object 5 of 70 - 30 % of the weight of 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [ of butadienes ] styrene butadiene block copolymers - 30 weight sections are added. The covering tape for carrier tapes according to claim 3 characterized by a certain thing.

[Claim 11] Said interlayer consists of a three-tiered structure with the 3rd resin layer which touches the 1st resin layer, the 2nd resin layer, and said heat SHIRANTO layer. Said 1st resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. It is formed with ethylene and alpha olefine copolymer. Said 2nd resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. Ethylene and 30 - 70 % of the weight of alpha olefine copolymers, It is formed with a 70 - 30 % of the weight [ of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight / of butadienes / styrene butadiene block copolymers ] resin constituent. Said 3rd resin layer Ethylene and 30 - 70 % of the weight of alpha olefine copolymers of a consistency 0.915 - 0.940 g/cm<sup>3</sup>, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymers The covering tape for carrier tapes according to claim 3 characterized by being what currently formed with the resin constituent with which high impact polystyrene 5 - 50 weight sections are added.

[Claim 12] Said interlayer turns into the 1st resin layer, the 2nd resin layer, and said heat SHIRANTO layer from a three-tiered structure with the 3rd resin layer of \*\*\*\*. Said 1st resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. It is formed with ethylene and alpha olefine copolymer. Said 2nd resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. Ethylene and 30 - 70 % of the weight of alpha olefine copolymers, It is formed with a 70 - 30 % of the weight [ of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight / of butadienes / styrene butadiene block copolymers ] resin constituent. Said 3rd resin layer A consistency 0.915 - 0.940 g/cm<sup>3</sup> Ethylene and 30 - 70 % of the weight of alpha olefine copolymers, As opposed to 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymers to the resin constituent 100 weight section With the resin constituent with which the hydrogenation object 5 of a styrene butadiene block copolymer with 10 - 50 % of the weight of styrene and butadienes 90-50 - 30 weight sections, and high impact polystyrene 5 - 50 weight sections are added The covering tape for carrier tapes according to claim 3 characterized by being what currently formed.

[Claim 13] Said middle class is 3 the consistency of 0.915-0.940g/cm. Covering tape for carrier tapes according to claim 1 characterized by being formed with the resin constituent which consists of ethylene and

30 - 70 % of the weight of alpha olefin copolymers, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymers.

[Claim 14] Said middle class is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. Covering tape for carrier tapes according to claim 1 characterized by being formed with the resin constituent which consists of 70 - 30 % of the weight of hydrogenation objects of ethylene and 30 - 70 % of the weight of alpha olefin copolymers, and a 10 - 50 % of the weight of styrene, and 90 - 50 % of the weight [ of butadienes ] styrene butadiene block copolymer.

[Claim 15] the line to which, as for said interlayer, glass-transition temperature exceeds 40 degrees C -- the covering tape for carrier tapes according to claim 1 characterized by being formed with saturated polyester.

[Claim 16] Said heat sealant layer is polyester, polyurethane, a vinyl chloride and a vinyl acetate system copolymer, and a covering tape for carrier tapes according to claim 1 to 15 characterized by including at least one sort of acrylic resin.

[Claim 17] Said static electricity diffusion layer is a covering tape for carrier tapes according to claim 1 to 16 which surface resistivity is in the range of 10<sup>5</sup>-10<sup>12</sup>ohms / \*\*, and is characterized by the charge damping time being 2 or less seconds 99%.

[Claim 18] The covering tape for carrier tapes according to claim 1 to 17 characterized by for total light transmission being 75% or more, and a haze value being 50% or less.

---

[Translation done.]

**\* NOTICES \***

**JPO and NCIPi are not responsible for any damages caused by the use of this translation.**

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

---

**DETAILED DESCRIPTION**


---

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention contains a semiconductor device in the pocket section of the crevice formed in the container made of synthetic resin which contains various industrial components, for example, a carrier tape, and about the covering tape of the carrier tape which covers and heat seals a stowage, when mounted in electronic parts, the opening exfoliation is easy for it, and it belongs to the covering tape whose peel strength was stable.

[0002]

[Problem(s) to be Solved by the Invention] Sheet forming, such as a polyvinyl chloride, polystyrene, polyester, and a polycarbonate, is usually easy for the material of the container made of synthetic resin which contains various industrial components, for example, a carrier tape. Moreover, the covering tape consists of a layered product which prepared the heat sealant layer in one field of a film. It is required that a carrier tape or a covering tape should have the transparency of extent which can view not only the generating prevention means of static electricity for not causing degradation of electronic parts and destruction but contents with static electricity generated when the electronic parts contained exfoliate the pocket section of a carrier tape, contact on a covering tape, and a covering tape. Moreover, in order to take out the electronic parts contained, exfoliation of lid material is easy, further, electronic parts vibrate by the variation in peel strength during exfoliation actuation, or it is required that the elutriation from a carrier tape should be prevented. It offers a technical problem the covering tape excellent in the antistatic effectiveness while detachability of this invention is stable.

[0003]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, the covering tape of this invention carries out the laminating of the static electricity diffusion layer which uses as a principal component the compound base material sheet which pasted together the oriented film with which this covering tape consists of more than two-layer through the adhesives layer, the middle class, a heat SHIRANTO layer, and a bis-ammonium system sulfur semi-conductor to order in the covering tape which can be heat sealed on a carrier tape. And the adhesives layers which paste said oriented film together are polyester, a polyether, urethane system resin, ethylene and a vinyl acetate system copolymer, acrylic resin, epoxy resins, or these denaturation objects. Said interlayer Moreover, the ethylene and alpha olefine copolymer of a consistency 0.915 - 0.940 g/cm<sup>3</sup> (unit g/cm<sup>3</sup> of a consistency omits below) (it is indicated as an E-O copolymer below), A 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymer (regardless of a ratio, it is indicated as a S-B copolymer below), The hydrogenation object of a 10 - 50 % of the weight of styrene, and 90 - 50 % of the weight [ of butadienes ] styrene butadiene block copolymer (it is indicated as a S-B copolymer water garnish below), And it is the covering tape formed with three or more sorts of resin which contains an E-O copolymer and a S-B copolymer at least among high impact polystyrene (it is indicated as Following HIPS). Said interlayer is monolayer structure. 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers It is the covering tape formed with the resin constituent with which 10 - 50 % of the weight of styrene, the 90 - 50 % of the weight [ of butadienes ] S-B copolymer water garnish 5 - 30 weight sections, and HIPS 5 - 50 weight sections are added. Moreover, said interlayer is monolayer structure and is the covering tape formed to the resin constituent 100 weight section which consists of 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 %

of the weight [ of butadienes ] S-B copolymers with the resin constituent with which the 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [ of butadienes ] S-B copolymer water garnish 5 - 30 weight sections are added. And said interlayer is monolayer structure and is the covering tape formed to the resin constituent 100 weight section which consists of 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers with the resin constituent with which 5 - 50 % of the weight of HIPS(s) is added. Moreover, said interlayer consists of two-layer structure with the 2nd resin layer which touches the 1st resin layer and said heat SHIRANTO layer. Said 1st resin layer is formed with the E-O copolymer of consistencies 0.915-0.940. Said 2nd resin layer 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers It is the covering tape currently formed with the resin constituent with which the 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [ of butadienes ] S-B copolymer water garnish 5 - 30 weight sections are added. Moreover, said interlayer consists of two-layer structure with the 2nd resin layer which touches the 1st resin layer and said heat SHIRANTO layer. Said 1st resin layer is formed with the E-O copolymer of consistencies 0.915-0.940. Said 2nd resin layer 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers It is the covering tape formed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 10 - 50 % of the weight of styrene, and 90 - 50 % of the weight [ of butadienes ] S-B copolymers with the resin constituent with which HIPS5 - 50 weight sections are added. Moreover, said interlayer consists of two-layer structure with the 2nd resin layer which touches the 1st resin layer and said heat SHIRANTO layer. said 1st resin layer is formed with the E-O copolymer of consistencies 0.915-0.940 - having -- said 2nd resin layer -- the E-O copolymer of consistencies 0.915-0.940 -- different -- with 30 - 70 % of the weight As opposed to the resin constituent 100 weight section which consists of 50 - 90 % of the weight of styrene, 50 - 10 % of the weight of butadienes, and 70 - 30 % of the weight of S-B copolymers It is the covering tape formed with the resin constituent with which 10 - 50 % of the weight of styrene, the 90 - 50 % of the weight [ of butadienes ] S-B copolymer water garnish 5 - 30 weight sections, and HIPS5 - 50 weight sections are added. Moreover, said interlayer turns into the 1st resin layer, the 2nd resin layer, and said heat SHIRANTO layer from a three-tiered structure with the 3rd resin layer of \*\*\*\*, said 1st resin layer is formed with the E-O copolymer of consistencies 0.915-0.940, and said 2nd resin layer is 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and the 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymer 7. It becomes with a resin constituent with 0 - 30 % of the weight. Said 3rd resin layer 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers It is the covering tape formed with the resin constituent with which the 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [ of butadienes ] S-B copolymer water garnish 5 - 30 weight sections are added. Moreover, said interlayer turns into the 1st resin layer, the 2nd resin layer, and said heat SHIRANTO layer from a three-tiered structure with the 3rd resin layer of \*\*\*\*. Said 1st resin layer is formed with the E-O copolymer of consistencies 0.915-0.940. Said 2nd resin layer 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, It becomes with a 70 - 30 % of the weight [ of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight / of butadienes / S-B copolymers ] resin constituent. Said 3rd resin layer 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, It is the covering tape currently formed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers with the resin constituent with which HIPS5 - 50 weight sections are added. Moreover, said interlayer turns into the 1st resin layer, the 2nd resin layer, and said heat SHIRANTO layer from a three-tiered structure with the 3rd resin layer of \*\*\*\*. Said 1st resin layer is formed with the E-O copolymer of consistencies 0.915-0.940. Said 2nd resin layer 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, It is formed with a 70 - 30 % of the weight [ of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight / of butadienes / S-B copolymers ] resin constituent. Said 3rd resin layer 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers It is the covering tape formed with the resin constituent with which 10 - 50 % of the weight of styrene, the 90 - 50 % of the weight [ of butadienes ] S-B copolymer water garnish 5 - 30 weight sections, and HIPS5 - 50 weight

sections are added. Moreover, said middle class is a covering tape currently formed with the resin constituent which consists of 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers. Moreover, said middle class is the covering tape formed with the resin constituent which consists of 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and 10 - 50 % of the weight of styrene and a 90 - 50 % of the weight [ of butadienes ] S-B copolymer water garnish. moreover, the line to which, as for said interlayer, glass-transition temperature exceeds 40 degrees C -- it is the covering tape currently formed with saturated polyester. Moreover, said heat sealant layers are polyester, polyurethane, a vinyl chloride and a vinyl acetate system copolymer, and a covering tape containing at least one sort of acrylic resin. Moreover, said static electricity diffusion layer has surface resistivity in the range of 105-1012ohms / \*\*, and is a covering tape whose 99% charge damping time is 2 or less seconds. Moreover, total light transmission is 75% or more, and the haze value of the covering tape of this invention is 50% or less of thing.

[0004]

[Description of the Prior Art] Before, scouring a conductive carbon black particle and a metal particle on a carrier tape, or applying the coating liquid containing these to it as a generating prevention means of static electricity in the covering tape of a carrier tape, is performed. Moreover, scouring antistatic agents, such as a surface active agent, a conductive carbon black particle, and a metal particle in the heat sealant layer which contacts electronic parts and directly, or applying the coating liquid containing these to it as a means of the static electricity generating prevention in a covering tape, is performed.

[0005] Scouring conductive impalpable powder, such as a conductive carbon particle and a metallic oxide, and a metal particle, and it being crowded or applying to a carrier tape as a prevention means of static electricity generating of a carrier tape, is performed. Moreover, scouring antistatic agents, such as a surfactant, the conductive impalpable powder of a metallic-oxide system, and a metal particle, and it being crowded or applying to the heat sealant layer which contacts electronic parts and directly as a prevention means of static electricity generating of a carrier tape, is performed. As for what mixed especially in the heat sealant layer the impalpable powder which electric-conduction-ized the metallic oxide (tin oxide, zinc oxide), transparency was used comparatively well.

[0006] However, the conductive carbon black particle as an antistatic agent contained in an above-mentioned carrier tape and an above-mentioned covering tape and the metal particle reduced the transparency of a sheet, and had the problem of being hard to check the electronic parts contained from the outside. Moreover, when a surfactant was applied, the antistatic nature of a surfactant had a humidity dependency, does not have electrification brain prevention effectiveness sufficient in the ambient atmosphere of low humidity, and had the trouble which destroys electronic parts and to say.

[0007] Furthermore, predetermined reinforcement is required by heat sealing of a carrier tape of a covering tape so that a covering tape may exfoliate during transportation and storage and there may be that no electronic parts drop [ de] in it. However, when heat-sealing reinforcement was too large and a covering tape was exfoliated at the mounting process of electronic parts, there was a problem that the accident on which a carrier tape vibrates and electronic parts jump out of the pocket of a carrier tape occurred. Therefore, when a covering tape is heat sealed by sufficient reinforcement for a carrier tape and electronic parts are mounted, it is required that the detachability should be good. Adjusting this heat-sealing reinforcement on condition that heat-sealing temperature, time amount, a pressure, etc. had the problem of being very difficult. Moreover, even if it had suitable peel strength, when the difference (it is indicated as a zip rise below) of the maximum of peel strength and the minimum value was large, there was a problem that the electronic parts which the carrier tape vibrated or it contained jumped out.

[0008] The covering tape of this invention prepares the static electricity diffusion layer which uses a bis-ammonium system sulfur semi-conductor as a principal component in a heat sealant layer and a heat-sealing side.

[0009]

[Embodiment of the Invention] The covering tape of this invention carries out the laminating of the static electricity diffusion layer which uses as a principal component the compound base material sheet 2 which pasted together the oriented film with which this covering tape consists of two-layer through the adhesives layer 3, the middle class 5, the heat sealant layer 6, and a bis-ammonium system sulfur semi-conductor to order in the covering tape 1 which can be heat sealed on a carrier tape, as shown in drawing 1 .

[0010] The oriented film of this invention is one 3-25-micrometer shaft or biaxially oriented film produced from thermoplastics, such as polyamides, such as polyolefines, such as polyester, such as polyethylene



terephthalate and polyethylenenaphthalate, and polypropylene, and nylon, and a polycarbonate. And since bond strength with an adhesives layer is strengthened and it is stabilized, surface treatment, such as corona discharge treatment, plasma treatment, and sandblasting processing, can also be beforehand performed for the side which touches an adhesives layer if needed. Furthermore, a surfactant etc. can be scoured and lump electrification processing can also be performed.

[0011] And a compound base material sheet is formed by compounding preferably above-mentioned congener or an above-mentioned two-layer film of a different kind through a hardening reactive adhesive layer. The adhesives layer of the heat-curing mold of this invention uses polyester system resin, polyether system resin, urethane system resin, a vinyl system copolymer, ethylene acrylic resin, the poly thiol, an epoxy resin, etc. as a principal component, and has tolylene diisocyanate, 4 and 4, - diphenylmethane diisocyanate, hexamethylene di-isocyanate, isophorone diisocyanate, xylenediisocyanate, naphthylene-1,5-diisocyanate, polyamine, etc. as the curing agent.

[0012] Moreover, the constituent which mixed suitably the prepolymer which has a polymerization nature unsaturated bond or an epoxy group in a molecule, oligomer, and/or a monomer as ionizing-radiation hardening mold resin is used. For example, there are urethane acrylate, polyester acrylate, etc.

[0013] The laminating of spreading of an adhesives layer, and a base material layer and an interlayer can be performed by the usual dry lamination. Spreading of an adhesives layer does not ask the approaches, such as gravure coating and roll coating. the factor to which the thickness of the adhesives layer of a reaction hardening mold gives rigidity to a covering tape -- becoming -- 1 - 10 g/m<sup>2</sup> -- desirable (it indicates like solid content and the following) -- 2 - 5 g/m<sup>2</sup> it is . 2 g/m<sup>2</sup> Below, bond strength is not made to homogeneity, and it is 10 g/m<sup>2</sup>. Rigidity may be strong and the above adhesives layer is not only disadvantageous in respect of a price, but it may produce a crack on a covering tape. Moreover, the heat-sealing nature in low temperature may be checked because an adhesives layer becomes thick.

[0014] A compound base material sheet can give the thermal resistance in which a covering tape carries out thermofusion with a heat-resistant oriented film and the heat-sealing bar which contacts when heat sealing a covering tape on a carrier tape according to a compound operation of a reaction hardening mold adhesives layer or which carries out a heat shrink.

[0015] From the thing of a monolayer, the rigidity as a sheet becomes large according to an operation of the adhesives layer of a reaction type, and the exfoliation include angle of the compound base material sheet formed through an adhesives layer in the oriented film more than two-layer is stable, and it can be guessed that it is what can make small the zip rise which is the range of the maximum when exfoliating, and the minimum value.

[0016] moreover, in the case of a monolayer, rigidity can be enlarged by thickening an oriented film, but by becoming thick, the heating value which a heat sealant layer requires cannot be transmitted, but the temperature of a heat-sealing bar is set up highly -- required -- such -- \*\*. Therefore, the carrier tape in which thermal resistance is inferior carries out deformation and a dimensional change, and it becomes the cause of changing the location when mounting electronic parts.

[0017] Although a compound base material sheet does not carry out illustration, it can also be made into five or more layers including the adhesives layer by three or more layers of oriented films. And although the total thickness can be suitably set up by the purpose of use, 6-100 micrometers is 20-45 micrometers preferably.

[0018] If needed, using conductive impalpable powder, such as a surface active agent, conductive carbon black, metal vacuum evaporation, and a metallic oxide, etc., antistatic treatment can be performed, the opposite field, i.e., outermost side, with a heat sealant layer of a compound base material sheet, and generating of static electricity by contact to antisticking, such as dust and Chile, or other fields can be prevented on the front face of the base material sheet 2 in it.

[0019] Through the adhesives layer of the above-mentioned reaction type, it can form by the dry lamination or a compound base material sheet and an interlayer can prepare an interlayer in the compound base material sheet which prepared AC layer by the monolayer or multilayer melting extrusion coating. The heat and pressure when heat sealing can be equalized by generally using thermoplastics for the resin for adhesion prepared between a compound base material sheet and an interlayer. Being able to prepare the resin for adhesion by the melting extrusion coat or the sandwiches lamination using either the simple substance of denaturation objects, such as polyethylene, an ethylene-vinylacetate copolymer, an ethylene acrylic-acid copolymer, an ethylene acrylic ester copolymer, an ionomer, and polypropylene, or a blend object, the thickness is 60 micrometers or less.

[0020] When preparing the resin for adhesion, in order to strengthen adhesion with a compound base



material sheet and the resin for adhesion which is thermoplastics, it is desirable to prepare the anchor coat layer (for this specification to indicate AC layer) used for a melting extrusion coat. Although the usual things, such as an isocyanate system and a polyethyleneimine system, can be used for AC layer, it can also do so the effectiveness which can make rigidity of the whole covering tape high by using the adhesives of a reaction hardening mold as an AC layer.

[0021] It produces the need of the heat-conducting characteristic as a covering tape falling, and setting up heat-sealing bar temperature highly and is not desirable if the thickness of the resin for adhesion exceeds 60 micrometers.

[0022] The middle class of this invention does an operation of the cushion which sticks both sheets to homogeneity, when a covering tape is heat sealed with a carrier tape. The bond strength of an interlayer 5 and the heat sealant layer 6 is regulated so that interlaminar peeling can be carried out to coincidence between an interlayer 5 and the heat sealant layer 4, as the covering tape heat sealed is shown in drawing 4 and drawing 5, when exfoliating from a carrier tape. Any of monolayer structure and multilayer structure are satisfactory for an interlayer 5, and he can form by combining two or more sorts of thermoplastics. Moreover, it can create by the monolayer or the multilayer by the usual film production approach by the inflation method by the circular dice, and the cast method by T dice.

[0023] Although anything of a single polymer, a copolymer, and a polymer alloy can be used, the resin used for an interlayer can be selected from a thing with an operation of cushion effect, when heat sealing a carrier tape and a covering tape, while it regulates bond strength (peel strength) with a heat sealant layer. For example, it can form by the polymer alloy which becomes with polyester, polyethylene, an ethylene-vinylacetate copolymer, an ethylene acrylic-acid copolymer, an ethylene acrylic ester copolymer, an ionomer, ethylene propylene rubber, and two or more sorts of resin that contains the polyethylene and the S-B copolymer other than polypropylene at least among polyethylene, a S-B copolymer, a S-B copolymer water garnish, and HIPS.

[0024] The interlayer of monolayer structure is indicated. The middle class can form with three or more sorts of resin which contains an E-O copolymer and a S-B copolymer at least among the E-O copolymer of consistencies 0.915-0.940, a 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymer, a 10 - 50 % of the weight of styrene, and 90 - 50 % of the weight [ of butadienes ] S-B copolymer water garnish, and HIPS. The E-O copolymers used for the middle class's formation are ethylene and a copolymer of a butene, a pentene, a hexene, a heptene, octene, 4-methyl pentene, 1, etc. When the consistency of such an E-O copolymer exceeds less than 0.915 and 0.940, the film production nature of the interlayer by combination with a S-B copolymer falls and is not desirable.

[0025] Moreover, if the amount of the styrene which constitutes the S-B copolymer which forms the middle class is less than 50 % of the weight, the adhesiveness of a film will increase and it will be hard coming to deal with it, and when it exceeds 90 % of the weight, bond strength with the heat sealant layer in low temperature may fall.

[0026] The mixing ratio of an interlayer's E-O copolymer and a S-B copolymer influences greatly the peel strength when exfoliating, after heat sealing on a carrier tape, and the transparency of a covering tape. 70 - 30 % of the weight has [ the mixing ratio of an E-O copolymer and a S-B copolymer ] 30 - 70 % of the weight of E-O copolymers, and a desirable S-B copolymer. [ in / at this invention / an interlayer ] When a S-B copolymer exceeds [ an E-O copolymer ] 70 % of the weight less than 30% of the weight, transparency will get worse not only an interlayer's film production nature falls, but, and the bond strength of an interlayer and a heat sealant layer will become large, the peel strength of a covering tape will exceed a fitness value, and it is not desirable. On the other hand, an E-O copolymer exceeds 70 % of the weight, and when a S-B copolymer is less than 30 % of the weight, the bond strength of the middle class and a heat sealant layer is small, and is not less [ peel strength / fitness / as a covering tape ], and desirable.

[0027] When using a S-B copolymer water garnish and HIPS for an interlayer and fabricating with four sorts of resin, it is desirable to carry out 5-50 weight section addition of 5 - 30 weight section and the HIPS for a 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [ of butadienes ] S-B copolymer water garnish to the resin constituent 100 weight section which consists of the 30 - 70 % of the weight of the above E-O copolymers and 70 - 30 % of the weight of S-B copolymers.

[0028] The middle class who will be obtained if the addition of a S-B copolymer water garnish exceeds 30 weight sections is not easy [ blocking ] and desirable. When it is not actually the hydrogenation object which was added as a S-B copolymer water garnish, since the butadiene component is high, this copolymer becomes easy to generate the gel object which carried out the polymerization at the time of an interlayer's formation that it is easy to oxidize. Moreover, when it replaces with a S-B copolymer water garnish and a

nonaqueous additive is used, it may become it is bad and impossible producing a film film production precision.

[0029] An interlayer's transparency gets worse and is not desirable if the addition of HIPS exceeds 5 weight sections.

[0030] The above-mentioned interlayer may form to the resin constituent 100 weight section which consists of 30 - 70 % of the weight of E-O copolymers, and 70 - 30 % of the weight of S-B copolymers with the resin constituent containing three sorts of resin which added only the S-B copolymer water garnish of under 30 weight sections. Moreover, it may be formed to the resin constituent 100 weight section which consists of 30 - 70 % of the weight of E-O copolymers, and 70 - 30 % of the weight of S-B copolymers from the resin constituent which adds 5 - 50 weight section only for HIPS of under 50 weight sections, and contains three sorts of resin.

[0031] The interlayer of the monolayer structure of this invention can form besides the above-mentioned configuration from the resin constituent which consists of 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers. In this case, if the adhesiveness of a film increases that the amount of styrene which constitutes the S-B copolymer to be used is less than 50 % of the weight, and it is hard coming to deal with it and it exceeds 90 % of the weight, the bond strength of the heat sealant layer in low temperature will fall, and it is not desirable. And the mixing ratio of the E-O copolymer and S-B copolymer in the middle class influences greatly the peel strength and transparency when exfoliating, after heat sealing a covering tape on a carrier tape. When a S-B copolymer exceeds [ an E-O copolymer ] 70 % of the weight less than 30% of the weight, the middle class's film production nature and transparency will fall, and a covering tape will also spoil transparency. Moreover, the bond strength of the middle class and a heat sealant layer is also too large, and the peel strength of a covering tape will exceed a fitness value, and it is not desirable. On the other hand, an E-O copolymer exceeds 70 % of the weight, and when a S-B copolymer is less than 30 % of the weight, the bond strength of the middle class and a heat sealant layer is small, and it is not [ the peel strength of a covering tape will be less than a fitness value, and ] desirable.

[0032] The middle class of the monolayer structure of this invention can consist of resin constituents which consist of 90 - 10 % of the weight of 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and butadienes [ 70 - 30 % of the weight of styrene and 90 - 50 % of the weight of butadienes ] S-B copolymer water garnishes.

[0033] In this case, when the consistency of an E-O copolymer exceeds less than 0.915 and 0.940, the film production nature of the interlayer by combination with a S-B copolymer water garnish will fall, and it is not desirable. Moreover, if the adhesiveness of a film increases that the amount of styrene which constitutes the S-B copolymer water garnish to be used is less than 10 % of the weight, and it is easy to generate blocking and it exceeds 50 % of the weight, adhesion with the static electricity diffusion layer of whenever [ low-temperature ] worsens and is not desirable. A hydrogenation object has good compatibility with an E-O copolymer, and flexibility and transparency are given to an interlayer. And the mixing ratio of the middle class's E-O copolymer and a S-B copolymer water garnish influences greatly the peel strength after heat sealing a carrier tape and a covering tape, and the middle class's transparency. That is, when a S-B copolymer water garnish exceeds [ an E-O copolymer ] 70 % of the weight less than 30% of the weight, an interlayer's film production nature worsens and transparency also falls. On the other hand, an E-O copolymer exceeds 70 % of the weight, and when a S-B copolymer water garnish is less than 30 % of the weight, the bond strength of the middle class and a heat sealant layer is weak, and it is not less [ of a covering tape ] than a fitness value, and desirable.

[0034] the interlayer of this invention -- glass-transition temperature -- a line 40 degrees C or more -- it can also form with saturated polyester. glass-transition temperature -- a line 40 degrees C or more -- as saturated polyester, it is polyester by the dicarboxylic acid by aromatic series dicarboxylic acid, such as aliphatic series dicarboxylic acid and terephthalic acids, such as alcoholic components, such as ethylene glycol, propylene glycol, 1,4-butanediol, 1, and 4 cyclohexane dimethanol, and an adipic acid, a sebacic acid, isophthalic acid, and a diphenyl carboxylic acid, etc., for example. Specifically, a copolycondensation polymer with ethylene glycol, a terephthalic acid and ethylene glycol, isophthalic acid and a terephthalic acid, 1, and 4 cyclohexane dimethanol and ethylene glycol, a terephthalic acid and propylene glycol, a terephthalic acid, isophthalic acid, etc. is used. Moreover, having set glass-transition temperature as 40 degrees C or more originates in the environmental condition which uses a covering tape not resulting in 40 degrees C.

[0035] The interlayer of the above-mentioned monolayer structure has the desirable thickness of 10-100

micrometers. If film production nature is bad and exceeds 100 micrometers when thickness is less than 10 micrometers, the heat-sealing nature of a covering tape will fall.

[0036] The middle class 5 of this invention can consider as multilayer structure, and drawing 2 is the schematic diagram showing the cross section of the covering tape of two-layer structure, and constitutes the middle class 5 from a 1st resin layer 51 and a 2nd resin layer 52.

[0037] A consistency with easy film production uses the 1st resin layer as the E-O copolymer of 0.915-0.940. In this case, the 2nd resin layer As opposed to the resin constituent 100 weight section which a consistency becomes from 30 - 70 % of the weight of E-O copolymers of 0.915-0.940, and 70 - 30% of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers It can form from the resin constituent with which the 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [ of butadienes ] S-B copolymer water garnish 5 - 30 weight sections are added. Furthermore, the 2nd resin layer can also be formed with the resin constituent which has added HIPS of 5 - 50 weight section to the resin constituent 100 weight section which consists of 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers. Moreover, the 2nd resin layer can form a 10 - 50 % of the weight of styrene, and 90 - 50 % of the weight [ of butadienes ] S-B copolymer water garnish to the resin constituent 100 weight section which consists of 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers with the resin constituent which added 3 - 30 weight section, and HIPS5 - 50 weight sections.

[0038] And the 1st resin layer and the 2nd resin layer can be formed by the thickness of 5-60 micrometers, respectively.

[0039] Drawing 3 is the schematic diagram of a cross section showing the example of the covering tape of this invention which made the middle class 5 the three-tiered structure, and constitutes the 1st resin layer 51 from a 3rd resin layer 53 which touches the heat sealant layer 6 through the 2nd resin layer 52 in the middle class 5.

[0040] The 1st resin layer consists of E-O copolymers of the consistencies 0.915-0.940 with easy film production. In this case, the 2nd resin layer The constituent which becomes with 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940 and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene and 50 - 10 % of the weight [ of butadienes ] S-B copolymers, and the 3rd resin layer are different presentations. 30 - 70 % of the weight of and E-O copolymers of consistencies 0.915-0.940, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers The constituent which added 10 - 50 % of the weight of styrene, the S-B copolymer water garnish of 90 - 50 % of the weight [ of butadienes ] 5 - 30 weight section, and HIPS5 - 50 weight sections can constitute.

[0041] The 3rd resin layer can be formed from the resin constituent with which the 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [ of butadienes ] S-B copolymer water garnish 5 - 30 weight sections are added to the resin constituent 100 weight section which a consistency becomes from 30 - 70 % of the weight of E-O copolymers of 0.915-0.940, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers. Moreover, the 3rd resin layer can also be formed to the resin constituent 100 weight section which consists of 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers with the resin constituent with which HIPS5 - 50 weight sections are added. Furthermore, it can form to the resin constituent 100 weight section which consists of 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers with the resin constituent with which 10 - 50 % of the weight of styrene, the 90 - 50 % of the weight [ of butadienes ] S-B copolymer water garnish 5 - 30 weight sections, and HIPS5 - 50 weight sections are added.

[0042] And the 1st resin layer, the 2nd resin layer, and the 3rd resin layer can be formed by the thickness of the range of 3-30 micrometers, respectively. An adhesives layer is prepared in one field of a compound base material sheet, and the dry lamination of the interlayer who created at another process can be carried out, or the coat of the resin for adhesion can be extruded and carried out through AC layer, and it can form by the sandwiches lamination.

[0043] By preparing an interlayer a heat sealant layer, when exfoliating the covering tape heat sealed by the carrier tape, the covering tape of this invention is the exfoliation gestalt of the desirable form produced

between the layers of an interlayer 5 and the heat sealant layer 6, as shown in drawing 6. That is, when exfoliating, as shown in drawing 6, interlaminar peeling of the covering tape 1 which formed the heat-sealing section 10 in the carrier tape 11 shown in drawing 4 - drawing 5 is carried out between an interlayer 5 and the heat sealant layer 6. The peel strength in this case is weaker than the bond strength of the heat sealant layer 6 and the static electricity diffusion layer 8, bond strength with the static electricity diffusion layer, or the bond strength of the static electricity diffusion layer and a carrier tape, and it is desirable that it is the range of 100-1200g / 15mm. When peel strength is set to 100g / less than 15mm, and transporting the container which heat sealed the covering tape, there is a danger that will produce interlaminar peeling between an interlayer and a heat sealant layer, and contents will drop out. Moreover, if peel strength exceeds 1200g / 15mm, it is [ a possibility that the pocket of a carrier tape may vibrate and contents may jump out ] and is not desirable when exfoliating a covering tape. In addition, the above-mentioned peel strength is the value which measured the exfoliation include angle of 180 degrees, and the exfoliation rate by 300 mm/min in 40% of 23-degree-C relative humidity. (Below, especially on these specifications, unless it limits, the value measured on condition that the above is indicated). Moreover, a zip rise has desirable 30g or less, when it measures by 2mm width. When exfoliating a covering tape from a carrier tape in the case of 30g or more, a carrier tape vibrates and contents may jump out.

[0044] As mentioned above, interlaminar peeling of an interlayer and a heat sealant layer can be attained by fully performing heating and pressurization. For example, they are 0.3 - 2.0 seconds, and pressurization about 130-200 degrees C and heating time in whenever [ stoving temperature ] 0.73 - 3.0 kgf/cm<sup>2</sup>. It is extent. It exfoliates 180 degrees, and it is weaker than the heat-sealing reinforcement of a heat sealant layer and a carrier tape, and, as for this peel strength, it is desirable that it is the range of 100-1200g / 15mm. If peel strength is set to 100g / less than 15mm, in case contents will be contained and transported, there is a danger that will exfoliate between the layers of an interlayer and a heat sealant layer, and contents will drop out. Moreover, if peel strength exceeds 1200g / 15mm, it jumps out [ a carrier tape vibrates and / contents ] and is not desirable when exfoliating a covering tape.

[0045] Since the covering tape of this invention exfoliates between an interlayer and a heat sealant layer, it does not change with heat-sealing conditions. Therefore, heat sealing with a covering tape and a carrier tape can fully be heated, and can be performed, and the stable heat-sealing reinforcement and peel strength can be obtained.

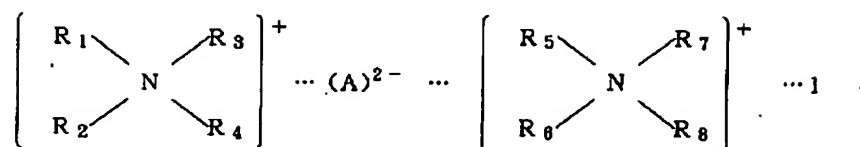
[0046] The heat sealant layer of the covering tape of this invention is constituted by polyester, polyurethane, a vinyl chloride and a vinyl acetate system copolymer, the thermoplastics that consists of at least one sort of acrylic resin, the conductive particle mentioned later. A mixing ratio can mention [ the mixture or the mixing ratio of polyester, and a vinyl chloride and a vinyl acetate system copolymer of 5:5 to 9.5:0.5 ] the mixture of the polyurethane of 9:1-4:6, and a vinyl chloride and a vinyl acetate system copolymer, and a mixing ratio can mention the mixture of the acrylic resin of 5:5 to 9.5:0.5, and a vinyl chloride and a vinyl acetate system copolymer etc. to the combination of two or more sorts of thermoplastics. moreover, an interlayer -- glass-transition temperature -- a line 40 degrees C or more -- when based on saturated polyester, it is desirable to use the mixture of polyurethane, and a vinyl chloride and a vinyl acetate system copolymer.

[0047] The static electricity diffusion layer prepared in the heat sealant layer of this invention uses a bis-ammonium system sulfur semi-conductor as a principal component. And it can knead to thermoplastics or thermoplastic elastomer, or can distribute to a resin varnish, or the melting extrusion coat of the solution distributed to (water/isopropyl alcohol) as a simple substance can be carried out, or it can be prepared according to a roll coat, spraying, etc. 0.01-30 micrometers of thickness of the static electricity diffusion layer in this invention are 0.05-2 micrometers preferably.

[0048] The bis-ammonium system sulfur semi-conductor used in this invention is combination shown in the following general formula 1.

[0049]

[Formula 1]



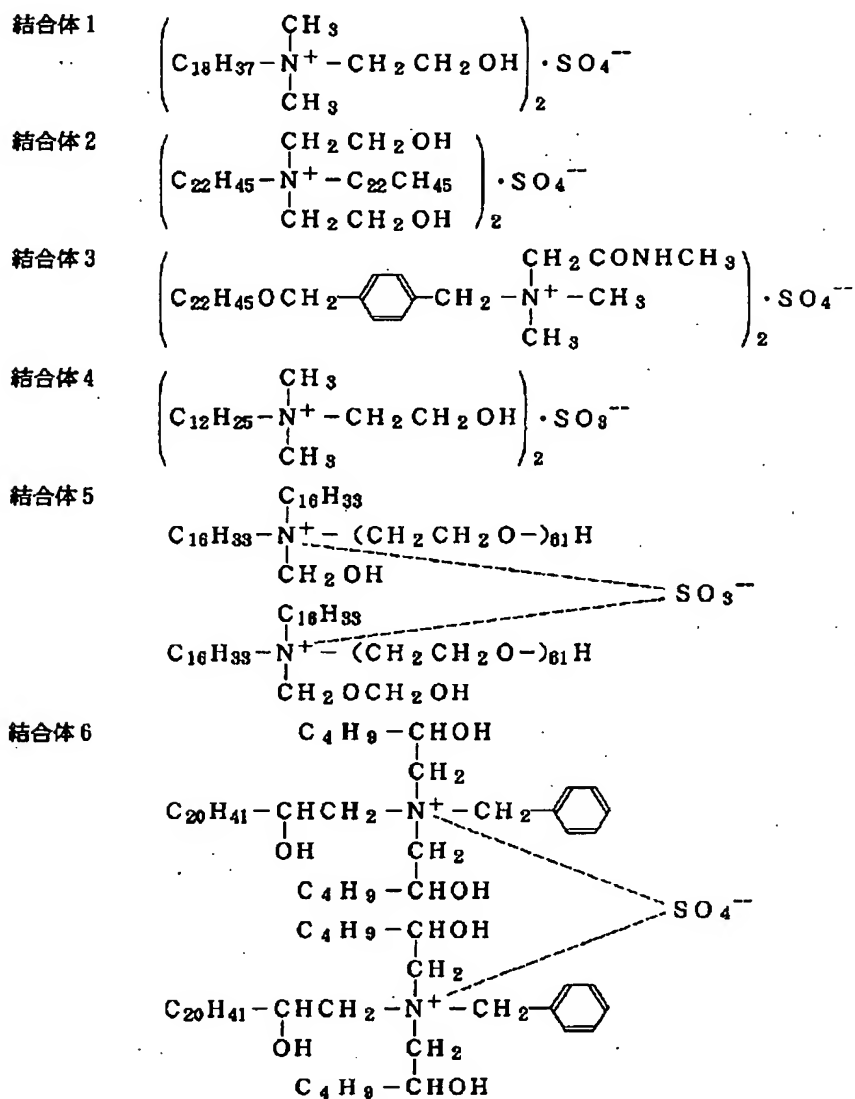
(但し、 $R_1$ 、 $R_2$ 、 $R_3$ 、 $R_4$ 、 $R_5$ 、 $R_6$ 、 $R_7$ 及び $R_8$ は、炭素数1～22の炭化水素基、ヒドロキシル置換炭化水素基、基内にアミド結合及び／又はエステル結合を合計2個以下有する炭素数合計3～30の炭化水素系の基、中間にエーテル酸素を1個含む炭素数合計2～30の炭化水素系の基、炭素数合計4～25の $\alpha$ -炭化水素基置換3-オキシ-2-ヒドロキシプロピル基、炭素合計数2～122の末端ヒドロキシル基置換ポリオキシ炭化水素基、炭素数合計3～122のポリオキシ炭化水素基、カルボニル基を連結基として末端炭化水素基と結合している炭素合計4～122のポリオキシ炭化水素基、同一原子団内に中心窒素原子ともう一つのN-置換基とでモルホリン環、炭素数合計5～8の置換もしくは無置換ピリジン環、又は炭素数合計4～24のC-炭化水素基置換イミダゾリン環を形成する残基であり、

$(A)^{2-}$ は $SO_3^{2-}$ もしくは $SO_4^{2-}$ であり、かつ $R_1$ 、 $R_2$ 、 $R_3$ 、 $R_4$ 、 $R_5$ 、 $R_6$ 、 $R_7$ 及び $R_8$ のうち少なくとも1つが炭素数6以上の炭化水素基であるか、もしくはそれを連結させた基である。

より具体的には、下記の結合体1～29に示されるものを使用することができる。

[0050]

[Formula 2]

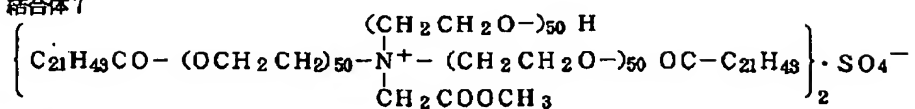


[0051]

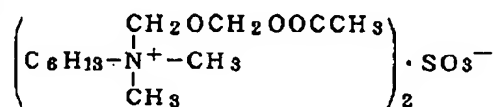
[Formula 3]



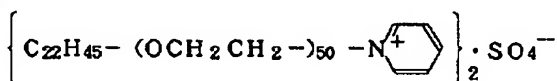
結合体 7



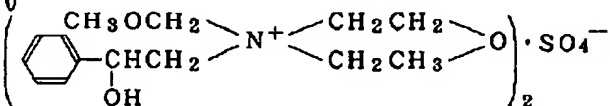
結合体 8



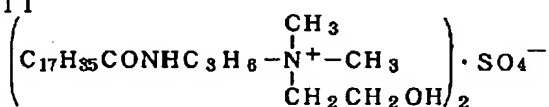
結合体 9



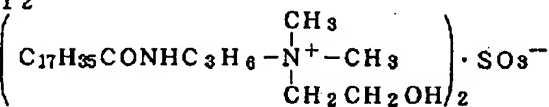
結合体 10



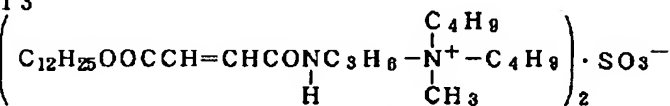
結合体 11



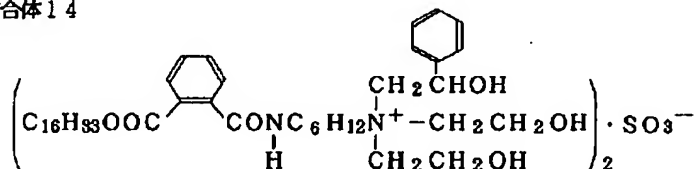
結合体 12



結合体 13



結合体 14



[0052]

[Formula 4]

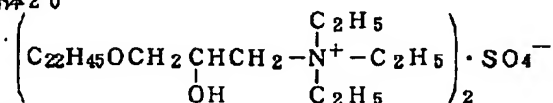
$$\left( \text{C}_{16}\text{H}_{33}\text{N}-\underset{\text{H}}{\underset{\text{O}}{\text{C}}}-\text{CH}_2\text{CH}_2\underset{\text{O}}{\underset{\text{H}}{\text{C}}}-\text{N}-\text{C}_3\text{H}_6\overset{\text{C}_2\text{H}_5}{\underset{\text{CH}_2}{\text{N}^+}}-\overset{\text{C}_2\text{H}_5}{\text{C}} \right)_2 \cdot \text{SO}_4^-$$
$$\left( \text{C}_{16}\text{H}_{33}\text{OOC} \begin{array}{c} \text{C}_6\text{H}_4 \\ \text{CON} \begin{array}{c} \text{CH}_3 \\ | \\ \text{N}^+ - \text{CH}_2 - \text{C}_6\text{H}_5 \\ | \\ \text{CH}_3 \end{array} \end{array} \right)_2 \cdot \text{SO}_4^-$$
$$\left( \text{C}_6\text{H}_5\text{OOC}-\text{CH}=\text{CHCOOC}_2\text{H}_4\text{N}^+\text{C} \begin{array}{l} \text{CH}_2\text{CH}_2\text{OH} \\ \text{CH}_2\text{CH}_2\text{OH} \end{array} \text{CH}_2 \right)_2 \cdot \text{SO}_3^-$$

8

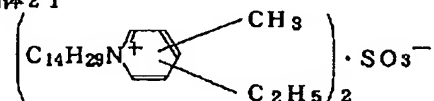
$$\begin{array}{c}
 \text{CH}_3 \\
 | \\
 \text{CH}_2\text{CHOH} \\
 | \\
 \text{C}_6\text{H}_{13}-\text{N}^+-\text{CH}_3 \\
 | \\
 \text{CH}_2\text{CHOH} \\
 | \\
 \text{CH}_3
 \end{array}
 \begin{array}{c}
 \text{SO}_3^- \\
 \diagup \quad \diagdown \\
 \text{C}_2\text{H}_5 \\
 | \\
 \text{C}_2\text{H}_5-\text{N}^+-\text{C}_2\text{H}_5 \\
 | \\
 \text{C}_2\text{H}_5
 \end{array}$$

[Formula 5]

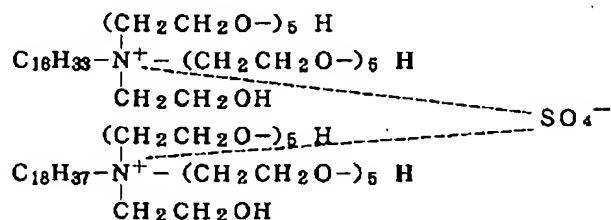
結合体 2 0



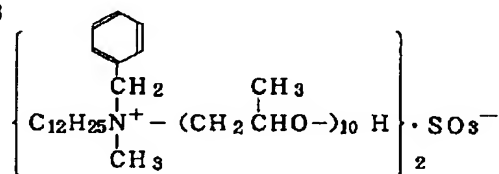
結合体 2 1



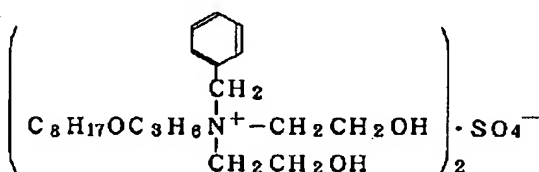
結合体 2 2



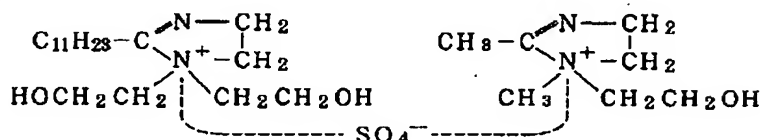
結合体 2 3



結合体 2 4



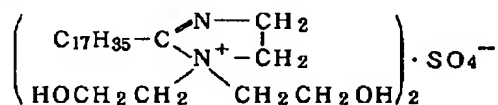
結合体 2 5



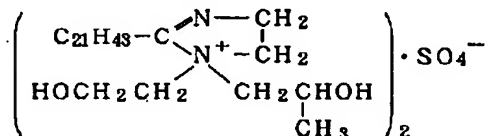
[0054]

[Formula 6]

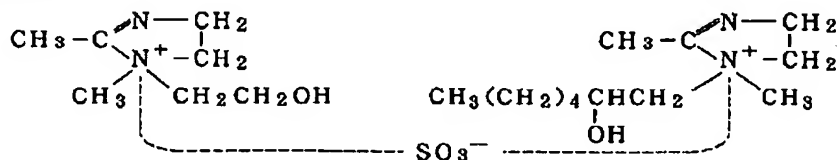
結合体 2 6



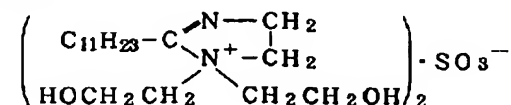
結合体 2 7



結合体 2 8



結合体 2 9



[0055] (\*\* 1) The charge damping time taken for the static electricity diffusion layer shown in - (\*\* 6) to have the surface resistivity within the limits of 105-1012 ohms in 60% of 22-degree-C relative humidity, and to decrease 99% from 5000V in 23\*\*5 degrees C and 12\*\*3% of relative humidity has the outstanding static electricity property for 2 or less seconds. If the above-mentioned surface resistivity exceeds 1012 ohms, the spreading effect of static electricity will fall extremely and it will become difficult to protect electronic parts from the static electricity destruction. Moreover, 105 When it becomes under omega, there is a danger of being destroyed electrically, by energizing from the exterior to electronic parts through a covering tape. In addition, surface resistivity and the charge damping time indicate the numeric value measured under the conditions of the henceforth above. Moreover, the above-mentioned numeric value is measured based on U.S. MIL-B91705C.

[0056] Since the covering tape of this invention exfoliates between the layers of an interlayer and a heat sealant layer, it can heat seal with a carrier tape, without being influenced by conditions, and the stable detachability is shown. Drawing 4 - drawing 6 are made reference, and such interlaminar peeling is explained to a detail. The covering tape 1 shown in the carrier tape 11 with the pocket 12 first shown in drawing 4 R> 4 and drawing 5 at drawing 1 is heat sealed. This heat sealing forms the heat-sealing section 10 linear by predetermined width in the both ends of a pocket 12. The range of the bond strength of the interlayer 5 of the lid material 1 and the static electricity diffusion layer 8 is 100-1200g / 15mm in this condition, and it is smaller than the bond strength of the heat sealant layer 6 and the static electricity diffusion layer 8, or the bond strength of the static electricity diffusion layer 8 and the carrier tape 11. Next, if the covering tape 1 is exfoliated from the carrier tape 11, in the linear heat-sealing section 10, the heat sealant layer 6 and the static electricity diffusion layer 8 will be heat sealed by the carrier tape 11, and will exfoliate between the layers of an interlayer 5 and the heat sealant layer 6. therefore, the covering tape 1 -- the heat sealant layer 6 and the static electricity diffusion layer 8 -- \*\* -- where the heat-sealing section 10 of an inside line is left to a carrier tape, it exfoliates. That is, the covering tape 1 of this invention combines the stable heat-sealing nature to the carrier tape 11, and the opposite property that exfoliation is easy. Moreover, when the compound base material sheet 2 consists of multilayer oriented films, there are also few zip rises at the time of exfoliation, and they can perform stable exfoliation.

[0057] The quality of the materials of the carrier tape set as the use object of the covering tape of this invention are a polyvinyl chloride, polystyrene, polyester (A-PET, PEN, PET-G, PCTA), polypropylene, a polycarbonate, a polyacrylonitrile, ABS, etc. And there are some which scour the conductive impalpable powder, organic silicon compound, or surfactant which gave these the conductive carbon black particle and the metal particle, and gave conductivity to the metallic oxide as an antistatic cure, or apply the thing containing these. Moreover, the thing in which the conductive polymer was formed is mentioned to the front face of the multilayer sheet which carried out the laminating of the polystyrene system or ABS system resin which contains carbon black to one side or both sides of a polystyrene system or an ABS system resin sheet to one by the co-extrusion, and a sheet plastic. Or the thing in which the conductive polymer was made to form on the surface of a sheet plastic can also be mentioned as conductive processing.

[0058] Next, a concrete example is shown and the covering tape of this invention is further explained to a detail.

(Example 1 of an experiment) the biaxial-stretching polyester film 22 which performed surface treatment with a biaxial-stretching polyester film [ 21 ] of with a thickness of 12 micrometers and a thickness of 6 micrometers as shown in drawing 1 -- [ -- as a curing agent, all formed the adhesives layer 7 for bamboo NETO A-50 [ trade name by Takeda Chemical Industries, Ltd.] in the bamboo rack A515, carried out the dry lamination of trade name [ by S pet 6140 Toyobo Co., Ltd. ] to it, and the compound base material sheet 2 was created. It used by the presentation which shows the following as an interlayer's component in Table 1, and the interlayer 5 with a thickness [ of a monolayer ] of 30 micrometers was created.

\*\* E-O copolymer : ULTZEX 3550 [trade name by Mitsui Petrochemical Industries, Ltd.] consistency =0.925 g/cm3.

\*\* S-B copolymer : 70 - 90 % of the weight of Asa FREX 810 [ trade name by Asahi Chemical Industry Co., Ltd.] styrene, 30 - 10 % of the weight of butadienes.

\*\* S-B copolymer water garnish : 20 - 50 % of the weight of tough tech H1041 [ trade name by Asahi Chemical Industry Co., Ltd.] styrene, 80 - 50 % of the weight of butadienes.

\*\* HIPS : Styron 475D [ trade name by Asahi Chemical Industry Co., Ltd.].

\*\* S.B-block elastomer : a 20 - 50 % of the weight of tough PURENA [ trade name by Asahi Chemical Industry Co., Ltd.] styrene, and 80 - 50 % of the weight [ of butadienes ] non-hydrogenation object.

The AC layer 3 was formed in the oriented film 22 of the compound base material sheet 2, and the laminating of the compound base material sheet 2 and the interlayer 5 of the presentation shown in the \*\* table 1 was carried out to it by the sandwiches lamination as resin 4 for low-density-polyethylene MIRASON 16 [ trade name by Mitsui Petrochemical Industries, Ltd.] adhesion with a thickness of 20 micrometers. Subsequently, the heat sealant layer 6 which dissolved the following constituent in the solvent by gravure reverse was prepared for the above-mentioned middle class 5 by the thickness of 2 micrometers (solid content). Furthermore, it is the solution of bis-ammonium system sulfur \*\*\*\*\* by the gravure coat as a static electricity diffusion layer to the heat sealant layer 6 0.1 g/m<sup>2</sup> The comparison samples 1-6 were created in the sample 1 of the covering tape which is applied and is shown in Table 1 - 16 lists.

(Coating liquid for heat sealant layers)

- Polyurethane NIPPORAN 5120 25 weight sections [ trade name by Japan polyurethane industrial incorporated company]

- A vinyl chloride and vinyl acetate system copolymer Vinylite VAGH 75 weight sections [Union Carbide trade name]

[0059]

[Table 1]

表 1

蓋 材	単 層 中 間 層 の 組 成				
	E・O 共重合体	S・B 共重合体	S・B共 水添物	HIPS	静電気 拡散層
試料	1 2	8 8	—	—	有
	2 1 2	8 0	8	—	"
	3 1 2	8 0	—	8	"
	4 4 0	6 0	—	—	"
	5 4 0	5 0	5	5	"
	6 4 0	4 2	2 8	—	"
	7 4 0	4 2	—	2 8	"
	8 4 0	1 0	2 5	2 5	"
	9 8 8	1 2	—	—	"
	10 8 8	—	1 2	—	"
	11 4 0	6 0	—	—	"
	12 4 0	6 0	—	—	"
	13 4 0	6 0	—	—	"
	14 4 0	6 0	—	—	"
	15 4 0	6 0	—	—	"
	16 4 0	6 0	—	—	"
比較 試料	1 5	9 5	—	—	"
	2 9 5	5	—	—	"
	3 4 0	2 5	3 5	—	"
	4 4 0	5	—	5 5	"
	5 4 0	6 0	—	—	無
	6 4 0	6 0	—	—	*

但し、 \* : 界面活性剤型帯電防止剤を使用

但し、 表中の数値は重量部を示す。

S・B共水添物は、S・B共重合体水添物である。

[0060] Although heat sealed with the conductive polyvinyl chloride base material " trade name made from a XEG47 peace chemistry incorporated company stock" as a result of measuring total light transmission, surface resistivity, and the charge damping time whenever [ haze ] by the following approach about each above-mentioned covering tape (samples 1-16 and comparison samples 1-6), peel strength and an exfoliation gestalt are shown in Table 2.

- Whenever [ haze ], and total light transmission : measure by color computer SM-44C " trade name by Suga Test Instruments Co., Ltd."

- Surface resistivity : Electro-Tech Systems, STATIC made from Inc. DECAY 23\*\*5 degrees C and relative humidity measure the time amount which 5000V to 99% of attenuation takes on the conditions which are 12\*\*3% according to MIL-B-81705C using METER-406C.

- peel strength: -- 150 degrees C, 3 kgf/cm<sup>2</sup>, and the conditions for 0.5 seconds -- heat sealing -- tensilon universal testing machine HTH- 100 "an Oriental Baldwin, Inc. trade name" -- using -- 180-degree exfoliation and an exfoliation rate -- 300 mm/min -- measurement.

[0061]

[Table 2]

表 2

蓋材	ヘーズ度 %	全光線 透過率%	表面 抵抗率 $\Omega$	電化減衰 時間 秒	剝離強度 g/15mm	剝離形態	
試料	1	20	90	$10^7$	0.01	1120	層間剝離
	2	24	85	$10^7$	0.01	1100	"
	3	26	84	$10^7$	0.01	1170	"
	4	20	92	$10^7$	0.01	800	"
	5	30	80	$10^7$	0.01	700	"
	6	32	75	$10^7$	0.01	700	"
	7	35	70	$10^7$	0.01	700	"
	8	40	65	$10^7$	0.01	720	"
	9	10	92	$10^7$	0.01	1050	"
	10	12	92	$10^7$	0.01	1050	"
	11	20	92	$10^7$	0.01	700	"
	12	22	90	$10^7$	0.01	400	"
	13	20	92	$10^7$	0.01	420	"
	14	15	92	$10^7$	0.01	520	"
	15	16	90	$10^7$	0.01	600	"
	16	20	85	$10^7$	0.01	600	"
比較 試料	1	15	90	$10^7$	0.01	1250	"
	2	15	90	$10^7$	0.01	80	"
	3	25	85	$10^7$	0.01	700	"
	4	52	60	$10^7$	0.01	700	"
	5	20	92	$>10^{13}$	$>2.0$	600	"
	6	20	92	$>10^{13}$	10.0	600	"

但し 剝離形態 層間剝離はヒートシーラント層と中間層との間で剝離

[0062] (Example 2 of an experiment) The compound base material sheet 2 was created by the dry lamination with the configuration shown in Table 3 with a following biaxial-stretching polyethylene terephthalate film and adhesives.

- Biaxial-stretching polyethylene terephthalate film Dacron film F type [ trade name by Teijin, Ltd.] thickness, 3 and 6, and 12 micrometers.

Dacron film V type [ trade name by Teijin, Ltd.] thickness, 20, and 25 micrometers.

- An adhesives ester system, an ether system, acrylic, an epoxy system, an urethane system, a polyimide system.

The laminating of the compound base material sheet shown in Table 3 or the base material sheet of a monolayer, and the interlayer 5 with a (thickness of 30 micrometers it is) thin from a 40 % of the weight of E-O copolymers and 60 % of the weight [ of S-B copolymers ] blend object was carried out by the dry lamination through the adhesives layer 7 used in the example 1 of an experiment. Subsequently, 2 micrometers of heat sealant layers of the following presentation by gravure reverse are prepared for the above-mentioned middle class 5 with a gravure reverse coat, and it is the static electricity diffusion layer like the example 1 of an experiment further 0.1 g/m<sup>2</sup> It applied and the comparison samples 7-9 were created in the sample 17 of the covering tape shown in Table 3 - 25 lists.

(Coating liquid for heat sealant layers)

- Polyurethane NIPPORAN 5120 70 weight sections [ trade name by Japan polyurethane industrial incorporated company]

- A vinyl chloride and vinyl acetate system copolymer Vinylite VAGH 18 weight sections [Union Carbide trade name]

- Silica Particle size 0.02 micrometers Twelve weight sections [0063] About each covering tape (they are the comparison samples 7-9 to a sample 17 - 25 lists) of the example 7 of an experiment, it heat sealed on the sheet XEG47 of a carrier tape " trade name by peace chemistry incorporated company", the temperature of 130 degrees C and 150 degrees C and pressure 2 kgf/cm<sup>2</sup>, and the heat-sealing conditions for time amount 0.5 seconds, peel strength was measured, and the zip rise which is the difference of the average value of peel strength, and the maximum peel strength and the minimum peel strength was evaluated. The result is shown in Table 15.

[0064]

[Table 3]



蓋 材	複合基材シートの構成		ヒートシール温度 130℃			ヒートシール温度 150℃		
	各層の厚さ構成 (表面→中間層)	接着剤	剝離 強度	ジップ アップ	剝離 形態	剝離 強度	ジップ アップ	剝離 形態
試料17	6/6	U	450	12	層間	530	10	層間
18	3/3/3/3	U	500	10	"	560	8	"
19	6/6/6	U	380	6	"	430	8	"
20	12/6	U	380	8	"	430	8	"
21	6/6/6	E s	390	6	"	450	6	"
22	6/6/6	E	400	6	"	470	6	"
23	6/6/6	A c	410	8	"	450	8	"
24	6/6/6	E p	380	5	"	450	5	"
25	6/6/6	I	380	5	"	450	5	"
比較試料7	12	—	480	35	層間	500	35	層間
8	20	—	360	30	"	430	30	"
9	20	—	250	100	凝集	280	10	"

但し 接着剤

U : ウレタン系

E s : エステル系

E : エーテル系

A c : アクリル系

E p : エポキシ系

I : イミド系

剝離強度: g/15mm

ジップアップ: g/2mm

[0065]

[Effect of the Invention] The covering tape which formed the oriented film in the compound base material sheet pasted together with hardening mold adhesives more than two-layer The heat sealant layer prepared for the interlayer formed with three or more sorts of resin which a zip rise lessens when exfoliating, and contains an E-O copolymer and a S-B copolymer at least among an E-O copolymer, a S-B copolymer, a S-B copolymer water garnish, and HIPS When exfoliating with a carrier tape, the effectiveness which is what stabilizes and exfoliates between an interlayer and a heat sealant layer is done so. And the static electricity diffusion layer which uses as a principal component the bis-ammonium system sulfur semi-conductor formed in the heat sealant layer does so the effectiveness of providing a covering tape with the covering tape excellent in antistatic properties, such as surface resistivity and the charge damping time.

[Translation done.]

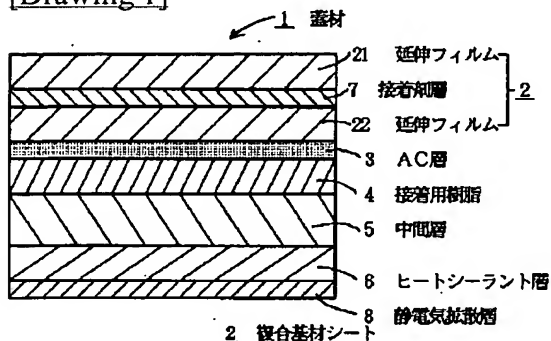
## \* NOTICES \*

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

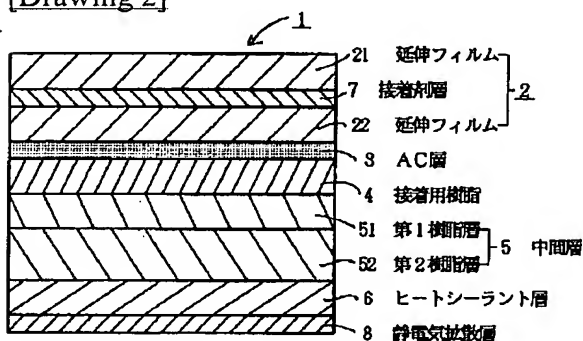
- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\*\* shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

## DRAWINGS

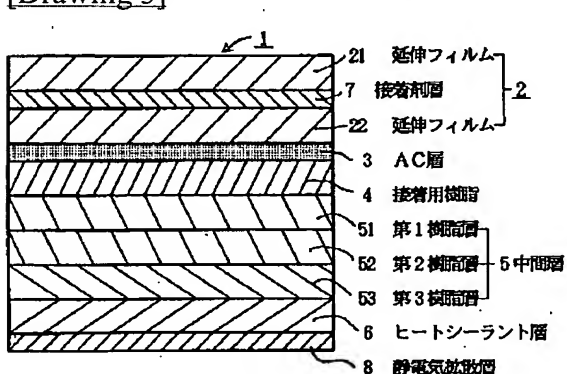
[Drawing 1]



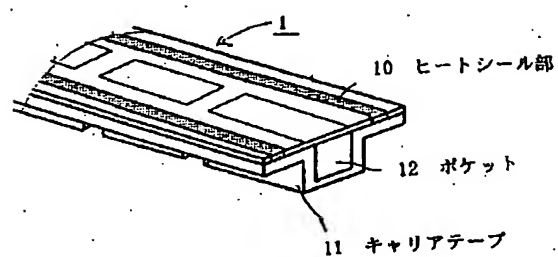
[Drawing 2]



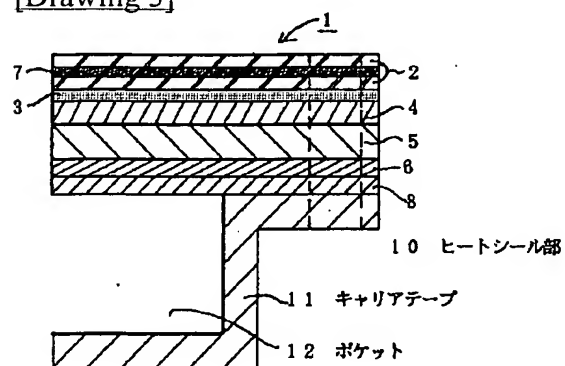
[Drawing 3]



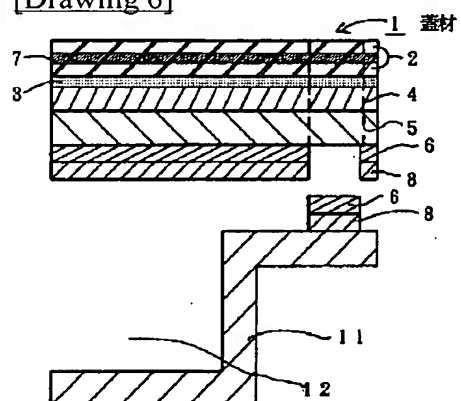
[Drawing 4]



[Drawing 5]



[Drawing 6]



[Translation done.]